

## COMPOSITE SOLID ELECTROLYTE

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**[57] Abstract:**

PURPOSE: To obtain a composite solid electrolyte, containing an inorganic salt and a specific organic solvent in a copolymer containing a block of polystyrenes having a graft chain of a polyoxyalkylene group, good in strength, ionic conductivity and moldability and useful as batteries or cells, etc. CONSTITUTION: This composite solid electrolyte is obtained by blending (A) a copolymer, having  $\geq 310$  polymerization degree and composed of at least one polymer block chain, comprising a recurring unit expressed by formula I [ $R^1$  is H, methyl or ethyl;  $R^2$  is H or methyl;  $R^3$  is an alkyl, an aryl, an acyl, silyl or a cyanoalkyl; (n) is an integer of 1-100; the number-average molecular weight of the graft chain expressed by formula II is 45-4400] and having  $\geq 10$  polymerization degree, (B) at least one polymer block chain comprising a recurring unit expressed by formula III [ $R^4$  is H, methyl or ethyl; M is vinyl, isopropenyl, a group expressed by the formula  $\text{COOCH}_3$  or  $\text{COOC}_2\text{H}_5$  or a (substituted)phenyl] and having  $\geq 300$  polymerization degree at (1:30) to (30:1) component ratio of the block chains (A):(B) with an inorganic salt and a cyclic carbonic acid ester-based organic solvent.

**[51] Int'l Class:** C08F28700 C08G06528 C08L05106 H01B00106  
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